

AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated in the following listing of claims. This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-40. (Canceled)

41. (Previously Presented) A method for transmitting data messages between a first communication device and a second communication device that exchange voice messages over a communication channel, the method comprising:

establishing a communication session between the first and second devices over the communication channel;

transmitting digital data from the first device to the second device during the establishing step; and

exchanging voice messages between the first and second device over the communication channel during the communication session,

wherein the digital data includes a sequence of unique signals comprising a predetermined number of basic signals each having a fixed frequency and a unique amplitude and wherein establishing the communication session includes sending an identifying message from the first device to the second device including an identifier reflecting at least one of a set of frequencies corresponding to the fixed frequencies of each basic signal and a fixed time period corresponding to at least one set of basic signals that are transmitted with the digital data.

42. (Previously Presented) The method of claim 41, wherein establishing the communication session includes:

sending a dialing signal from the first device to the second device over the communication channel; and

transmitting the digital data from the first device to the second device when sending the dialing signal.

43. (Previously Presented) The method of claim 41, wherein the digital data includes at least one of application program code, identification data corresponding to at least one of the first and second devices, digital payment information, and cryptographic authentication information.

44. (Previously Presented) The method of claim 41, wherein transmitting includes:

transmitting digital data from the first device to the second device during idle periods where no voice messages are exchanged between the first and second devices.

45. (Previously Presented) The method of claim 41, wherein establishing a communication session includes:

determining frequency characteristics of the communication channel; and

determining the amplitude for each basic signal based on the channel's frequency characteristics.

46. (Previously Presented) The method of claim 41, wherein establishing a communication session includes:

determining the amplitude of each basic signal based on acoustic characteristics of a human ear.

47. (Canceled).

48. (Canceled).

49. (Previously Presented) The method of claim 41, wherein the identifier identifies a first set of frequencies that are used by the first device and a second set of frequencies that are used by the second device when transmitting the digital data during the communication session.

50. (Canceled)

51. (Previously Presented) The method of claim 41, wherein each unique signal includes a set of the basic signals and transmitting the digital data includes:

transmitting the unique signals in a sequence during a corresponding sequence of fixed time periods.

52. (Previously Presented) The method of claim 51, further comprising:
decoding, at the second device, the sequence of unique signals into a sequence of basic data units that form the digital data.

53. (Previously Presented) The method of claim 41, wherein the communication channel has a noise level and each of the unique amplitudes is within a predetermined range above the noise level.

54. (Previously Presented) The method of claim 53, wherein the predetermined range is slightly above the noise level of the communication channel.

55. (Previously Presented) The method of claim 41, wherein the second device includes a telephone receiver for receiving the voice messages, the method further comprising:

filtering the basic signals, at the second device, to prevent the digital data from reaching the telephone receiver.

56. (Previously Presented) A system for transmitting data messages comprising:

a first device;
a second device; and
a communications channel interconnecting the first and second devices for exchanging voice messages between the first and second devices,
wherein the first and second devices are configured to establish a communication session over the communication channel that includes sending an identifying message from the first device to the second device including an identifier reflecting at least one of a set of frequencies corresponding to the fixed frequencies of each basic signal and a fixed time period corresponding to at least one set of basic signals that are transmitted with the digital data, exchange voice messages over the communication channel during the communication session, and transmit digital data over the communication channel, the digital data including a sequence of unique signals comprising a predetermined number of basic signals each having a fixed frequency and a unique amplitude.

57. (Previously Presented) The system of claim 56, wherein the first device is configured to send a dialing signal to the second device over the communication channel when establishing the communication session and to transmit the digital data to the second device when sending the dialing signal.

58. (Previously Presented) The system of claim 56, wherein the digital data includes at least one of application program code, identification data corresponding to at least

one of the first and second devices, digital payment information, and cryptographic authentication information.

59. (Previously Presented) The system of claim 56, wherein at least one of the first and second devices are configured to transmit the digital data over the communication channel during idle periods where no voice messages are exchanged between the first and second devices.

60. (Previously Presented) The system of claim 56, wherein at least one of the first and second devices are configured to determine frequency characteristics of the communication channel and determine the amplitude for each basic signal based on the channel's frequency characteristics.

61. (Previously Presented) The system of claim 56, wherein at least one of the first and second device are configured to determine the amplitude of each basic signal based on acoustic characteristics of a human ear.

62. (Canceled)

63. (Canceled)

64. (Previously Presented) The system of claim 56, wherein the identifier identifies a first set of frequencies that are used by the first device and a second set of frequencies that are used by the second device when transmitting the digital data over the communication channel.

65. (Canceled)

66. (Previously Presented) The system of claim 56, wherein each unique signal includes a set of the basic signals and at least one of the first and second devices are configured to transmit the unique signals in a sequence during a corresponding sequence of fixed time periods when transmitting the digital data.

67. (Previously Presented) The system of claim 66, wherein at least one of the first and second devices are configured to decode the sequence of unique signals into a sequence of basic data units that form the digital data transmitted over the communication channel.

68. (Previously Presented) The system of claim 56, wherein the communication channel has a noise level and each of the unique amplitudes is within a predetermined range above the noise level.

69. (Previously Presented) The system of claim 68, wherein the predetermined range is slightly above the noise level of the communication channel.

70. (Previously Presented) The system of claim 56, wherein the first and second devices each includes a telephone receiver for receiving the voice messages exchanged on the communication channel and a filter for filtering the basic signals transmitted with the digital data to prevent the digital data from reaching the telephone receiver.

71-75. (Canceled)

76. (Previously Presented) A computer-readable medium including instructions for performing a method, when executed by a processor, for transmitting data messages between a first communication device and a second communication device that exchange voice messages over a communication channel, the method comprising:

establishing a communication session between the first and second devices over the communication channel;

transmitting digital data from the first device to the second device during the establishing step; and

exchanging voice messages between the first and second device over the communication channel during the communication session,

wherein the digital data includes a sequence of unique signals comprising a predetermined number of basic signals each having a fixed frequency and a unique amplitude, and wherein establishing the communication session includes sending an identifying message

from the first device to the second device including an identifier reflecting at least one of a set of frequencies corresponding to the fixed frequencies of each basic signal and a fixed time period corresponding to at least one set of basic signals that are transmitted with the digital data.

77. (Previously Presented) The computer-readable medium of claim 76, wherein establishing the communication session includes:

sending a dialing signal from the first device to the second device over the communication channel; and

transmitting the digital data from the first device to the second device when sending the dialing signal.

78. (Previously Presented) The computer-readable medium of claim 76, wherein the digital data includes at least one of application program code, identification data corresponding to at least one of the first and second devices, digital payment information, and cryptographic authentication information.

79. (Previously Presented) The computer-readable medium of claim 76, wherein transmitting includes:

transmitting digital data from the first device to the second device during idle periods where no voice messages are exchanged between the first and second devices.

80. (Previously Presented) The computer-readable medium of claim 76,
wherein establishing a communication session includes:
determining frequency characteristics of the communication channel; and
determining the amplitude for each basic signal based on the channel's frequency
characteristics.

81. (Previously Presented) The computer-readable medium of claim 76,
wherein establishing a communication session includes:
determining the amplitude of each basic signal based on acoustic characteristics
of a human ear.

82. (Canceled).

83. (Canceled)

84. (Previously Presented) The computer-readable medium of claim 76,
wherein the identifier identifies a first set of frequencies that are used by the first device and a
second set of frequencies that are used by the second device when transmitting the digital data
during the communication session.

85. (Canceled).

86. (Previously Presented) The computer-readable medium of claim 76, wherein each unique signal includes a set of the basic signals and transmitting the digital data includes:

transmitting the unique signals in a sequence during a corresponding sequence of fixed time periods.

87. (Previously Presented) The computer-readable medium of claim 86, further comprising:

decoding, at the second device, the sequence of unique signals into a sequence of basic data units that form the digital data.

88. (Previously Presented) The computer-readable medium of claim 76, wherein the communication channel has a noise level and each of the unique amplitudes is within a predetermined range above the noise level.

89. (Previously Presented) The computer-readable medium of claim 88, wherein the predetermined range is slightly above the noise level of the communication channel.

90. (Previously Presented) The computer-readable medium of claim 76, wherein the second device includes a telephone receiver for receiving the voice messages, the method further comprising:

filtering the basic signals, at the second device, to prevent the digital data from reaching the telephone receiver.